ABSTRACT

HPLC METHODE VALIDATION FOR ASSAY OF PHENOXYETHANOL AND ALKYL PARABEN IN SUNSCREEN CREAM

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The combination of alkyl paraben (methyl paraben, ethyl paraben, propyl paraben & butyl paraben) and phenoxyethanol has been widely used as preservative in dermatological or cosmetics products such as moisturizers, hand cream and sunscreen cream. The objective of the present study was to validate the HPLC method for analysis of phenoxyethanol, methyl paraben, ethyl paraben, propyl paraben and butyl paraben in sunscreen cream. The analytes were separated on a High Pure Silica Purospher Star RP-18 endcapped column (125 x 4) mm and acetonitrile: methanol: water were used as the mobile phase with gradient system at 1 mL/min flow rate. The diode array detector was set at 258 nm and column temperature was set at 30^{o}C. Using this method, the mixture of preservatives were separate perfectly in 17 minutes, resulting resolution more than 1.5. The method was validated in terms of specificity, linearity, accuracy, precision, and robustness. Linearity regression graphic showed linear response over the range of concentration used (between 40% and 160% for each substances). The average of recovery was in range between 95 % and 106%, and the precisions (RSD) were less than 2% for all substances. This method was proved to be selective and robust over the column temperature changing. The proposed method was successfully applied for analysis of mixture preservatives in sunscreen cream products.

Keywords: methyl paraben, ethyl paraben, propyl paraben, butyl paraben, phenoxyethanol, HPLC, validation, sunscreen cream